

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/074,826	GLEMAN, STUART M.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Tiffany A Feltzner	2859	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 09/24/2004 & telephonic interview of 12/22/2004.
2. ☒ The allowed claim(s) is/are 1-3,6-24 and 27-39.
3. ☒ The drawings filed on 12/17/2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☒ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☒ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☒ hereto or 2) ☒ to Paper No./Mail Date 05/13/2003.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

**Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                                    |
| 2. <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                     | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date <u>12/22/2004</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment  |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance                           |
|   | 9. <input type="checkbox"/> Other _____  |

### Examiner's Amendment

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
2. Authorization for this examiner's amendment was given in a telephone interview with **Attorney Daniel S. Polley, Reg. No. 34,902 Reg. No.** on December 22<sup>nd</sup> 2004 along with authorization to charge any necessary fees to applicant's deposit account No. 503180.
3. The application has been amended as follows:

**A) Replace claim 1 with the following Examiner amended claim 1:**

**Claim 1** --- A radio-frequency imaging system for noninvasively imaging the internal structure of an object, comprising:

means for **generating a first beam comprised of multiple differing simultaneous radio frequency signals**, said signals having a particular wavelength, that is to be passed through said object;

means for **transmitting said first beam comprised of multiple differing simultaneous radio frequency signals toward said object**, said means for transmitting said first beam disposed at a first side of the object;

means for receiving non-reflected portions of said first beam after said non-reflected portions have passed through said object;

means for **transmitting, at a different frequency than the RF signals of the first beam, an additional beam comprised of radio frequency signals towards said object in a non-parallel crossed travel path with respect to a travel path of the first beam, at the same time said first beam is transmitted, in order to obtain localized RF energy cross-beam information;**

means for receiving a non-reflected portion of said additional beam after said non-reflected portion of said additional beam has passed through said object;

**means for generating one or more images of at least a portion of said object's internal structure based on received non-reflected portions of said first beam; and**

**means for displaying said one or more images. ---**

**B) Cancel claim 4.**

**C) Cancel claim 5.**

**D) Replace claim 6 with the following Examiner amended claim 6:**

**Claim 6** --- The radio-frequency imaging system of claim 1 further including scanning means physically connected to said first beam transmitting means and said first beam receiving means which moves one or both in a linear orientation proximate said object in order to measure said first beam's attenuation and creates a planar scan of said object representing a spatial position of said first beam through said object. ---

**E) Replace claim 7 with the following Examiner amended claim 7:**

**Claim 7** --- The radio-frequency imaging system of **claim 1** further including scanning means physically connected to said first beam transmitting means and said first beam receiving means which moves one or both in a rotational orientation about said object, and which moves one or both along said object, in order to measure said first beam's attenuation as a function of axial position and azimuth angle and to create a three-dimensional cylindrical tomographical scan of said object representing attenuation of the first beam as a function of a spatial position of said first beam through said object.

**F) Replace claim 14 with the following Examiner amended claim 14:**

**Claim 14** --- The radio-frequency imaging system of **claim 1** wherein said first beam receiving means are situated within a travel path of the non-reflected portion of the first beam, said first beam receiving means measuring a ratio of received signal power of the non-reflected portion passed through the object to transmitted signal power. ---

**G) Replace claim 15 with the following Examiner amended claim 15:**

**Claim 15** --- The radio-frequency imaging system of **claim 1** wherein said beam receiving means are situated within a travel path of the non-reflected portion of the additional beam, said additional beam receiving means measuring a ratio of received signal power to transmitted signal power. ---

**H) Replace claim 16 with the following Examiner amended claim 16:**

**Claim 16** --- The radio-frequency imaging system of **claim 1** further comprising one or more auxiliary detectors receiving deflected portions of the first beam, said one or more auxiliary detectors in communication with said means for generating said images, said auxiliary detectors situated at predetermined angles in relation to the path of said first beam in order to gather additional information regarding RF energy scattered out of said first beam. ---

**I) Replace claim 17 with the following Examiner amended claim 17:**

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**Claim 17** --- The radio-frequency imaging system of **claim 1** further comprising one or more auxiliary detectors receiving deflected portions of the additional beam, said one or more auxiliary detectors in communication with said means for generating said images, said auxiliary detectors situated at predetermined angles in relation to the path of said beams in order to gather additional information about RF energy scattered out of said additional beam. ---

**J) Replace claim 21 with the following Examiner amended claim 21:**

**Claim 21** "An imaging system for noninvasively scanning people or objects comprising:

- means for generating a first beam comprised of radio frequency signals of at least one frequency, said signals having a particular wavelength with at least a portion of the signals passing through said person or said object;

- first means for transmitting said first beam toward said person or said object;

- first means for receiving the portion of the signals of said first beam that are passed through said person or said object;

- scanning means for moving said first means for transmitting and said first means for receiving with respect to the position;

- means for generating a second beam comprised of radio frequency signals of at least one frequency, **which is transmitted at a different frequency than a transmission frequency of the radio frequency signals of said first beam**, said signals of said second beam having a particular wavelength with at least a portion of the signals passing through said person or said object;

- second means for transmitting said second beam toward said person or said object simultaneous with the transmission of said first beam and in a non-parallel travel path with respect to a travel path of said first beam;**

- second means for receiving the portion of the signals of said second beam that are passed through said person or said object;

scanning means for moving said second means for transmitting and said second means for receiving with respect to the position;

means for generating one or more images of at least a portion of said person or said object's internal structure based on the portion of the signals received by said first and second means for receiving; and

means for displaying said one or more images." ---

**K) Replace claim 22 with the following Examiner amended claim 22:**

**Claim 22** --- A method of noninvasively imaging the internal structure of an object, person or animal, said method comprising the steps of:

generating a first beam comprised of radio frequency signals with at least a portion of the radio frequency signals to be passed through said object;

transmitting said first beam toward said object;

receiving a non-deflected portion of said first beam after the non-deflected portion of said beam has passed through said object;

generating a second beam comprised of radio frequency signals **transmitted at a different frequency than a transmission frequency of the radio frequency signals of said first beam, with at least a portion of the radio frequency signals of said second beam** to be passed through said object;

**transmitting said second beam toward said object simultaneous with the transmission of said first beam and in a non-parallel travel path with respect to a travel path of said first beam;**

receiving a non-deflected portion of said second beam after the non-deflected portion of said second beam has passed through said object;

generating one or more images of at least a portion of said object's internal structure; and

displaying said one or more images.---

**L) Cancel claim 26.**

**M) Replace claim 29 with the following Examiner amended claim 29:**

**Claim 29** --- The method of **claim 22** further comprising the step of measuring a ratio of received signal power of the non-reflected portion passed through the object to transmitted signal power, said step of measuring performed by said beam receiving means situated within a travel path of the non-reflected portion of said first beam. ---

**N) Replace claim 30 with the following Examiner amended claim 30:**

**Claim 30** --- The method of **claim 22** further comprising the step of measuring a ratio of received signal power of the non-reflected portion passed through the object to transmitted signal power, said step of measuring performed by said beam receiving means situated within a travel path of the non-reflected portion of said second beam. ---

**O) Replace claim 31 with the following Examiner amended claim 31:**

**Claim 31** --- The method of **claim 22** further comprising the step of gathering additional information about RF energy scattered out from a deflection portion of said first beam, said step of gathering accomplished via one or more auxiliary detectors situated at predetermined angles in relation to the path of said first beam. ---

**P) Replace claim 32 with the following Examiner amended claim 32:**

**Claim 32** --- The method of **claim 22** further comprising the step of gathering additional information about RF energy scattered out from a deflection portion of said beams, said step of gathering accomplished via one or more auxiliary detectors situated at predetermined angles in relation to the path of said beams. ---

**Q) Replace claim 36 with the following Examiner amended claim 36:**

**Claim 36** --- A system for noninvasively affecting, processing or interacting with internal structures, subsystems and/or components of an industrial object or system comprising:

means for simultaneously transmitting a plurality of crossed beams of radio frequency energy wherein each of said plurality of crossed beams is transmitted at a different frequency than the other beams of said plurality of crossed beams, wherein a non-reflected portion of each transmitted beam is passed through the object or the system such that the radio frequency energies are delivered to a volume of intersection of said beams, and wherein combinations of said frequencies interact specifically with said internal structures, said subsystems and/or said components creating a desired effect.---

**R) Replace claim 37 with the following Examiner amended claim 37:**

**Claim 37** --- The imaging system of **claim 1** further comprising:

computer means for comparing said generated images of said object with generic raw output of said object, said generic raw output of said object being stored in a computer storage medium, said means for comparing determining when said object is missing components, and when said object is a human or animal, in order to determine when said object is missing an internal organ or has broken or damaged an internal



organ, said computer means capable of correcting said generated image in order to more closely match said stored raw output. ---

**S) Replace claim 38 with the following Examiner amended claim 38:**

**Claim 38** --- The method of **claim 22** further comprising the step of:  
comparing said generated images of said object with raw output of said object, via a computer means, said raw output of said object stored in a computer storage medium, and said step of comparing determining when said object is missing components, whether the object is a human or animal, and determining when said object is missing an internal organ or has broken an internal organ, wherein said computer means is capable of correcting said generated image in order to more closely match said stored raw output ---

**T) Replace claim 39 with the following Examiner amended claim 39:**

**Claim 39** --- The imaging system of **claim 37** further comprising software instructions stored in said computer storage medium, said software instructions compensating for diffraction effects from the object."

The following is an examiner's statement of **Reasons for Allowance**:

**4.** With respect to **examiner amended claims 1-3, 6-24, and 27-39** These claims are allowable over the prior art of record because the prior art of record does not disclose or suggest the combination of features set forth in **examiner amended independent claims 1, 21, 22, or 36** which comprise "a radio-frequency imaging system / method comprising generating two RF interacting beams wherein "a first beam comprised of multiple differing simultaneous radio frequency signals, is

**transmitted at the same time as a second / additional RF beam which has a different frequency from the frequencies of the first beam towards said object in a non-parallel crossed travel path with respect to a travel path of the first beam, Receiving non reflected portions of the first and / or the additional / second beam; and generating one or more images of at least a portion of said object's internal structure..."** in combination with the remaining limitations of each of the claims. **It is the combination of all of the claim limitations taken as a whole that constitutes both the novelty and non-obviousness of applicant's claims.**

5. With respect to **Claims 2, 3, 6-20, 23, 24, 27-35 and 37-39** each of these claims are allowable over the **prior art of record** because they depend on an **allowable examiner amended claim**.

6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

**Examiner's Comment  
Response to Arguments**

7. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/24/2004 has been entered.

8. Applicant's arguments with respect to **claims 1-39** from the September 24<sup>th</sup> 2004 response have been considered and are persuasive therefore the **Guo et al.**, reference is no longer being applied by the examiner as prior art.

9. **Claim 25 is canceled** as per applicant's September 24<sup>th</sup> 2004 amendment and response.

10. **Claims 4, 5, and 26 are canceled** as per the **attorney-approved examiner's amendment** above.

### ***Drawings***

11. The objections to the drawings from the May 8<sup>th</sup> 2003 office action are rescinded in view of applicant's amendments to the specification and drawings, and the submission of corrected / new drawings of 11/17/2003 which have been approved by the examiner, concerning Figure content.

12. The examiner notes that the November 17<sup>th</sup> 2003 submitted drawings still fail to meet the requirements of the official draftsman's Review form 948 that was enclosed with the May 8<sup>th</sup> 2003 office action. Additionally a review of the Formal drawings submitted November 17<sup>th</sup> 2003 still fail to comply with the official draftspersons Review. New Formal drawings of the examiner approved November 17<sup>th</sup> 2003 drawing submission which meet the requirements of the PTO-948 official draftspersons review from the May 8<sup>th</sup> 2003 office action and the PTO 948 form of 12/22/2004 which is attached to this office action are now required.

### ***Specification***

13. The objection to the abstract from the May 8<sup>th</sup> 2003 office action is rescinded, in view of the new abstract submitted with the November 17<sup>th</sup> 2003 amendment/response.

14. The **prior art made of record** and not relied upon is considered pertinent to applicant's disclosure.

**A) Bridges** US patent 5,704,355 issued January 6<sup>th</sup> 1998, which teaches a non-invasive device for breast cancer detection using scattered radio frequency to make a three-dimensional image. The use of two separate RF beams which satisfies the conditions of the claims (i.e. multi- RF pulses simultaneously transmitted at different frequencies according to the claims is not shown).

**B) Bridges** US patent 5,807,257 issued September 15<sup>th</sup> 1998, which teaches a non-invasive device for breast cancer detection using scattered radio frequency millimeter waves, to make a three-dimensional image. The use of two separate RF beams which satisfies the conditions of the claims (i.e. multi- RF pulses simultaneously transmitted at different frequencies according to the claims is not shown).

**C) Perelman et al.**, US patent 5,919,140 issued July 6th 1999, which teaches optical, imaging using scattered light to determine images of internal body structures for diagnostic imaging.

**D) Perelman et al.**, US patent 6,321,111 B1 issued November 20<sup>th</sup> 2001, filed July 2<sup>nd</sup> 1999 which also teaches optical imaging using scattered light to determine images of internal body structures for diagnostic imaging. It is a continuation of **Perelman et al.**, US patent 5,919,140.

**E) McMakin et al.**, US patent 6,507,309 B2 issued January 14th 2003, filed March 16th 2001 which teaches a device for security scanning a person or object in three-dimensions via radio frequency emissions. The use of Two RF beams which satisfies the conditions of the claims (i.e. multi- RF pulses simultaneously transmitted at different frequencies according to the claims is not shown).

**F) McMakin et al.**, US patent 6,703,964 B2 issued March 9th 2004, filed November 21<sup>st</sup> 2002 which teaches a device for security scanning a person or object in three-dimensions via radio frequency emissions. It is a continuation of **McMakin et al.**, US patent 6,507,309 B2 The use of Two RF beams which satisfies the conditions of the claims (i.e. multi- RF pulses simultaneously transmitted at different frequencies according to the claims is not shown).

**G) Johnson et al.**, US patent 6,005,916 issued December 21st 1999. This reference is 206 pages in length. This is a reference, which explains why imaging with scattering for diagnostic imaging works. The use of Two RF beams which satisfies the conditions of the claims (i.e. multi- RF pulses simultaneously transmitted at different frequencies according to the claims is not shown).

**H) Murphy** US patent 5,227,797.issued July 13<sup>th</sup> 1993. This prior art uses reflected signals, which is contrary to applicant's application.

**I) Murphy** US patent 5,030,956 issued July 9th 1991, which is the parent application to the reference applied in this office action. This prior art uses reflected signals, which is contrary to applicant's application.

**J) Schaefer et al.**, US patent 4,712,560. This prior art uses reflected signals, which is contrary to applicant's application.

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K) **Guo et al.**, US patent 5,363,050 issued November 8<sup>th</sup> 1994 This prior art fails to send, emit, or transmit two radio-frequency beams

L) **Plewes** US patent 6,246,895 B1 issued June 12<sup>th</sup> 2001, filed December 18<sup>th</sup> 1998.

M) **Oosta et al.**, US patent 6,070,093 issued May 30<sup>th</sup> 2000. This application uses visible light not radio waves.

N) **Kaufman et al.**, US patent 3,258,531 issued March 1<sup>st</sup> 1966.

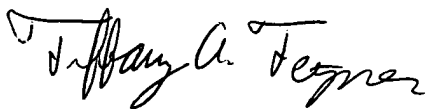
O) **Bare** US patent 6,221,094 B1 issued April 24<sup>th</sup> 2001, filed October 20<sup>th</sup> 1998. The device uses a single radio wave therapy device to treat patients.

P) **D. G. Tucker et al.**, US patent 3,099,833 issued July 30<sup>th</sup> 1963.

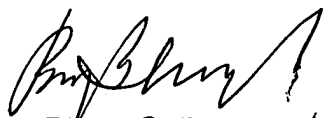
#### Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tiffany Fetzner whose telephone number is: (571) 272-2241. The examiner can normally be reached on Monday-Thursday from 7:00am to 4:30pm., and on alternate Friday's from 7:00am to 3:30pm.

16. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez, can be reached at (571) 272-2245. The **only official fax phone number** for the organization where this application or proceeding is assigned is **(703) 872-9306**.



TAF  
December 23, 2004



for Diego Gutierrez 12/23/04  
Supervisory Patent Examiner  
Technology Center 2800

**BRIJ SHRIVASTAV**  
**PRIMARY EXAMINER**